Canadian Journal of
PUBLIC HEALTH

VOLUME 41 TORONTO, OCTOBER 1950 NUMBER 10

Prepaid Medical Care under Government Auspices in Saskatchewan

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WE read and hear a great deal these days about health insurance. I imagine every person in this room is aware of the controversy over the issue of voluntary vs. compulsory health insurance. It seems a shame that this debate generates so much heat. The fact is that both of these forms of health insurance have a real contribution to make to human welfare and that they are more alike than they are different.

It all depends on what people want. If they think voluntary medical or hospital care insurance is sufficient, it is their privilege in a democracy to set up one or more plans of that type and nothing else. These plans will then offer varying benefits to those who can afford them.

If, on the other hand, the people of a province or a nation wish to see everybody have access to essential medical and hospital care, with no serious economic barrier between the patient and his doctor or hospital, they can see to it that a program of health insurance with universal coverage is established.

The principle of health insurance has been accepted. Practically every group concerned wishes to see more and more people have the security and positive advantages it offers. But some still fail to see that if the needs of more than a minority of the population are to be met, this can be accomplished only through a so-called compulsory program. There is no other way to finance the costly services that all of us require from time to time.

In Saskatchewan a good beginning has been made at meeting the needs of entire population groups. Some of what has been accomplished so far could be

Presented at the thirty-eighth annual meeting of the Canadian Public Health Association, held in the King Edward Hotel, Toronto, June 12-14, 1950, in conjunction with the first meeting of the Ontario Public Health Association.

called experimental, but its character is changing to that of proved demonstration. In our Swift Current Health Region, we have a pilot plan of medical care insurance covering every resident of a 12,000 square mile area except those already entitled to services through some special federal or provincial program. In the Saskatchewan Hospital Services Plan we have a program extending almost unlimited hospital care benefits to about 93 per cent of the entire provincial population—again, all except those already having special protection, and those living in the Far North.

Neither of these programs is perfect. In each there have been difficulties to overcome. Each still presents certain problems. But it would be a rash person who would suggest stopping either program. The people who are paying the cost and enjoying the benefits would not hear of going back to the old days when sickness meant piled-up debts and dependency. The doctors in the Swift Current Health Region, particularly those who lived and practised through the years of drought in the 1930's, clearly want their medical care program to continue. And hospital administrators will tell you that they have no desire to forego today's stable hospital financing and to return to the good old days when one of the basic if questionable freedoms enjoyed by each patient was freedom *not* to pay his hospital bill.

The medical care program in our Swift Current Health Region in southwestern Saskatchewan should be of particular interest to public health workers because it has been established in a public health unit. Under our Health Services Act the Board of Health of a Health Region has the authority, with the approval of the Minister of Public Health, to set up and administer a program offering almost any combination of medical, dental, and related services. There must, of course, be a basic public health program in effect before these other services can be offered. In the Swift Current Region the public health program started in the spring of 1946 and the medical care program started July 1 the same year. The people in the area had voted by a considerable majority for the establishment of this dual and yet co-ordinated program of community and personal health services.

In voting for this program, the people of the area exercised their democratic right of going to the polls and voluntarily electing to adopt a compulsory program. Scare words like "compulsory" and "socialized medicine" are not heard in southwestern Saskatchewan, but if they were, they would raise nobody's blood pressure.

The medical care program is administered, moreover, by a democratically elected Regional Health Board of twelve members. How this Board is constituted may be of interest to you. The Health Region includes 31 rural municipalities and some unorganized territory as well as 36 villages, 6 towns, and the City of Swift Current. The total population is about 52,000. On the basis of hospital and trade area planning the Region has been divided into four public health districts. In each district there is a health council composed of members appointed by each of the rural and urban municipalities within the district. These health councils in turn, and the Swift Current City Council, elect representatives to the 12-man Regional Health Board.

Since in Saskatchewan a regional public health program represents largely the decentralization of provincial functions, with the Medical Health Officer and members of his staff being provincial employees, the Regional Health Board's role is primarily advisory in so far as the public health program is concerned. In dealing with medical care, however, the Regional Health Board is the executive body, with the Health Officer participating in all meetings as an advisor to the Board. In the Swift Current Region, the Board employs a secretary-treasurer and clerical staff to administer the medical care program. Co-ordination of public health and medical care activities is facilitated by housing both staffs side by side in the Regional Health Centre.

While there happens to be no practising physician on the Regional Board, the medical profession has had a close relationship to this program from the beginning. A medical advisory committee representing the district medical society meets with the Regional Board from time to time and all contractual arrangements are arrived at by mutual agreement. Moreover, the assessment of physicians' bills is handled by a retired doctor in consultation with two other private practitioners, all being appointed by the medical society. Special referrals of patients outside the Region are handled in a similar manner.

As has been mentioned, the population coverage in this pilot plan is very broad. Generally speaking, everyone who has lived in the Health Region for three months is eligible for benefits and liable to pay the required tax. Those for whose care the Federal Government is responsible, such as Treaty Indians, are excluded. The same applies to a group of public assistance recipients for whose care the Provincial Government is responsible, including old age and blind pensioners, mother's allowance recipients, and government wards. Altogether, there are close to 50,000 people participating in the regional program out of a total population of about 52,000.

The exclusion from the program of those receiving pensions and allowances from the Province deserves an explanation. This whole group is already covered by a special public medical care program administered by the provincial Department of Public Health. This tax-supported program, which has been in effect since January 1, 1945, is characterized by the very broad scope of benefits it offers. The services include not only physicians' care in the office, home, and hospital, in-patient and out-patient hospital care, and almost unlimited dental care, but also optometrical services, eye glasses, 80 per cent of the cost of drugs, physiotherapy, the services of chiropodists, and some special nursing. I shall not deal with this program in detail, for it is a tax-supported program and not on a prepayment basis in the usual sense.

The services provided through the Swift Current program are not as comprehensive as those just listed, but by ordinary standards they are broad and go far toward meeting the needs of the people in the area. They include medical, surgical, and obstetrical care rendered by physicians within the Region, referrals to specialists outside the Region on a somewhat limited basis, a special radiological service, hospital out-patient services, and dental care for children up to 16 years of age. In-patient hospital care is provided through the province-wide Hospital Services Plan.

The basic service in this regional program is the care provided in the office, home, and hospital by the 35 physicians serving the Region. The patient is free to choose any physician he wishes and to change doctors when he so desires. The physicians are simply in ordinary practice as before, with their own offices or clinics. The services provided through the program include all essential services which the physicians in the Region are capable of rendering—preventive, diagnostic, medical, surgical, and obstetrical services. Aside from mileage charges that may be imposed for home visits, there is no direct charge to the patients for these services.

Until recently any patient could be referred to a doctor outside the Region by his family physician and 75 per cent of a standard fee would be paid. This year the Regional Health Board and the district medical society decided to reduce these referral services, which they thought were being abused. Referrals are now confined to conditions requiring special skills not found within the Region or they must be authorized by a special committee of physicians. Moreover, payment is now made at 50 per cent of the fee schedule, with the patient responsible for paying the balance.

A unique feature of the Swift Current program has been the employment by the Board of a full-time radiologist. He is at the service of the physicians and their patients throughout the Health Region. While he handles primarily the x-ray work at the Swift Current Union Hospital, the principal hospital in the Region, he makes periodic visits to main district hospitals to handle the more difficult radiological procedures. Moreover, general practitioners from all over the Region send him films to interpret.

Closely related to this service is another major benefit in the program, the provision of out-patient services by the 12 hospitals in the Region. These include all available diagnostic measures, such as laboratory tests, basal metabolism tests, electrocardiograms, and x-rays. They also include services related to treatment, such as physiotherapy and the use of the operating or emergency room for accident cases or conditions not demanding actual admission to a hospital bed.

Finally, a most worthwhile feature of the Swift Current program is the dental service for children up to 16. At the present time the Regional Board employs four dentists plus auxiliary personnel on a full-time basis and they are anxious to augment this staff. The services are rendered largely through the use of mobile units, but permanent clinics are also being established. Such a clinic is already found in the Regional Health Centre and others are planned for three district health centres. This program does not stop with examinations and prophylaxis; it includes fillings and any other services the salaried dentists can provide. An emergency service is also maintained, with payment being made to private dentists when no clinic is within reach.

The financing of this broad program of medical, dental, and out-patient care is handled almost entirely by the Region itself. The annual budget is about $700,000 and of this total the people within the Region contribute 90 per cent, with provincial grants accounting for the remaining 10 per cent. The Region's large share of the total revenue required is raised mostly through a personal tax or premium, with about one-fourth coming from the proceeds of a 2.2 mill property levy applicable to every property owner in the area. The personal tax

is $15 a year for a single person, $24 for a family of two, $30 for three, and $35 for a family of four or more. The provincial grants are applicable chiefly to the dental, radiological, and out-patient services, covering 50 per cent of the cost up to a certain maximum in each case; a substantial grant is also made to facilitate the assembling of statistical information. These various figures have no reference to the cost of the public health program, which is borne one-third by the Health Region and two-thirds by the Provincial Government.

The collection of both the personal and property taxes is handled by the various rural and urban municipalities, with the Region paying a commission for this service. The property tax is simply added to the levy otherwise payable by the property owner. The personal tax is paid at the town hall or the rural municipal office. Indigent persons or families for whom the municipalities are responsible have their tax paid on their behalf by the municipalities in which they live, and they receive just the same kind of health service card and the same benefits as anyone else. I'm sure we all recognize the soundness of this approach to the care of the indigent.

The people in the Swift Current area participate, of course, in the province-wide Saskatchewan Hospital Services Plan, which is administered by the Department of Public Health. This compulsory hospital care insurance program, now three and a half years old, is operating smoothly and efficiently. As mentioned before, it covers 93 per cent of the population of the Province. Indigents and those receiving pensions or allowances from the Province are included in the program through payment of the required personal tax by the municipality or the Provincial Government.

The Hospital Services Plan provides virtually complete in-patient hospital care on a public ward basis. There is no limit on length of stay in hospital within the Province and there are no restrictions such as a waiting period before maternity benefits start or the exclusion of pre-existing conditions.

The program is financed through an annual tax or premium of $10 for an adult and $5 for a child less than 18, with a family maximum of $30. Funds raised in this way are supplemented by general tax funds to the extent necessary to cover the over-all cost of the program.

Through the Hospital Services Plan the people of Saskatchewan are getting considerably more hospital care than that characteristic of the voluntary Blue Cross plans. The volume of care has increased each year as hundreds of new hospital beds have resulted from a vigorous hospital construction program. In 1949 almost one person in five was hospitalized, which one may compare with one in seven before the program started. Costs have gone up as well, influenced by the nation-wide increase in hospital operating costs as well as by the ever greater number of occupied hospital beds. The per capita cost was $9.69 in 1947, $11.42 in 1948, and $13.59 in 1949, including administrative costs. Economical administration has been a feature of the program, by the way, with overhead costs amounting to only 5 per cent of total expenditure in 1949, against a Blue Cross average of about 9 per cent.

My account of the Swift Current medical care program and of the Saskatchewan Hospital Services Plan has necessarily been sketchy. These programs constitute compulsory health insurance in effect today in Canada. They deserve

your study, and the same applies, of course, to the British Columbia Hospital Insurance Service. In the time remaining I wish to deal with what these Saskatchewan programs have meant to the groups most concerned and to touch on some of the problems that still await solution.

What have these programs meant to the people for whom they were established? In terms of making essential care available and affording security against the costs of unpredictable illness, they have meant a great deal. Each program is popular, although each naturally has its scattered critics who have improvements to suggest. It is striking that residents of the Swift Current Health Region have had little complaint to offer even though out-of-region benefits have had to be curtailed. By popular request the Region has been enlarged to take in people in adjacent areas who have been anxious to share in the benefits of the medical care program. In other health regions, moreover, there is a considerable demand for starting similar medical service plans and the same kind of dental care plan for children is being initiated in one region after another.

These broadly based prepayment programs, by mobilizing and spreading medical purchasing power, have resulted in increased medical and hospital resources. In the Swift Current Region, for example, the number of physicians has increased since the program began four years ago from 19 to 35, an increase definitely greater than in other parts of rural Saskatchewan. Having more doctors has meant more and better care for the people in the Region. Similarly, the existence of the hospitalization program has meant that hospitals could be built where needed, even in remote districts, because their maintenance was assured through payment for all beneficiaries from the provincial fund. This program has, in fact, given a strong impetus to hospital construction and is perhaps the most significant factor in Saskatchewan's being in the lead in Canada today in the number of hospital beds for its population.

This matter of stabilizing hospital financing stands out as the chief contribution which the Hospital Services Plan has made when one considers its effect on the hospitals themselves. The method of paying hospitals practically assures the meeting of their costs of operation, provided they are managed well and maintain satisfactory occupancy. Serious operating deficits, reported constantly in the press elsewhere, are now almost unknown in Saskatchewan, and I imagine the same statement holds for British Columbia. Observers agree that our hospitals as a group are in better shape today than ever before, with much new equipment, improved diagnostic facilities, and general maintenance right up to par. With financial worries minimized, hospital administrators are better able to concentrate on raising the standards of hospital care. Our Department's Division of Hospital Administration and Standards employs a number of professional and technical specialists who assist the hospitals in their effort to provide a high quality and yet economical service.

What has the Swift Current medical care program meant to the physicians practising in the Region? In a report published within the past three months one of the senior physicians in the area has told why he and his colleagues wish the program to continue. He acknowledges that the program involves "a certain amount of overwork" and that there is always "some misuse of such a system

by both patients and doctors." He also points out that there has been difficulty in reaching agreement with the Regional Health Board about the amount of money budgeted to pay doctors' bills. He emphasizes, however, that the program has meant greater security and stability for both doctor and patient. Let me quote from his report: "I do not think there is any doubt but that doctors in the Swift Current Region have better incomes under this system. . . . I feel certain that a return to private practice would reduce the number of doctors in the area. . . . Personally I cannot see how a voluntary system would work in this area." (1)

Since a recent article in the *Canadian Medical Association Journal* referred to the "depressed conditions" under which physicians in the Swift Current Region work (2), I wish to add a further note about their incomes. In 1949, with payment on a limited fee-for-service basis from a fund of $423,000, the active practitioners in the Region earned an average gross income of about $14,000, not counting income from other sources. In 1950 the figure will be higher, for the fund has been increased to $445,000. The truth of the matter is that such an income picture is quite remarkable in an intensely rural, notoriously poor-crop area such as southwestern Saskatchewan.

Lest I seem to have painted prepaid medical care under government auspices in too rosy a hue, let me conclude by citing certain problems that concern us.

One is the problem of socially acceptable and stable financing of medical care programs designed to meet the needs of entire population groups. A family of four in the Swift Current Region must pay a flat combined premium of $65 a year for medical and hospital care, regardless of income level, and they may pay a property tax as well. The Province lacks the power to graduate either tax according to income. Aside from this factor, it is clear that a health region provides too small a base of support for an extensive program and equally clear that a Province with an agricultural economy is seriously restricted in what it can undertake through its own resources. Adequate federal support for provincial programs could mean much in terms of the nation's health. Immediate support for pilot plans in every Province might ultimately save many millions of dollars.

Another problem is that of devising suitable controls to ensure the wise and discriminating use of the medical and hospital services available. When medical men come to face squarely the new responsibility placed on them through the operation of prepayment plans, this problem will dwindle in significance. In Saskatchewan the problem of controls comes up chiefly in connection with the hospitalization program and here one finds that the answer is complex, involving among other things the provision of diagnostic services in out-patient departments and group clinics, the development of alternative facilities for selected elderly and chronically ill patients, and the organization of home care programs.

A third problem, and a highly important one, relates to the quality of medical services. We tend to become preoccupied with solving the problem of how to pay for medical care, but what counts most is the type of care the individual patient gets when he needs it. This raises a host of questions relating to the need for more and better trained medical and hospital personnel of many kinds, the need for regular refresher courses, the desirability of introducing teamwork

into medical practice through the organization of group practice clinics, and the need to explore fully the exciting possibilities inherent in the new concept of regionalization.

Related very closely to the question of high-quality care is the problem of how best to ensure emphasis on prevention in a health insurance program. This will not just happen. It will depend on the closest co-ordination if not actual integration of "public health" and "medical care" functions. A tremendous challenge faces public health workers today. Through training, study, imagination, and initiative they must earn the privilege of playing a key role in guiding tomorrow's health programs.

The scope of public health has become constantly broader over the years. Services for the crippled child, for the cancer sufferer, for the industrial worker, and for the indigent person needing medical care are a far cry from the days when the public health program was chiefly one of environmental sanitation and communicable disease control. But public health must measure up to today's challenge or watch its functions become absorbed one by one in unfolding programs built simply around the prepayment principle. If the promotion of positive health and the prevention of illness are to dominate tomorrow's health programs, it is up to public health to point the way.

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Prepaid Medical-Care Programs in Ontario

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THE medical-care programs which I wish to discuss, some in general terms, others in some detail, are only those either sponsored by, or organized and operated by the medical profession of this Province. I shall make no reference to insurance or other prepaid medical-care plans. Concerning myself, I am neither an authority nor expert on this subject. You may regard me as a novice, as I assumed my present appointment on April 1st this year. What I have to present to you this afternoon is in reality the results of other men's vision, enthusiasm and labours.

The socio-economic problems of the depression years of the early 1930's resulted in some agitation on the part of the public, especially organized labour, for government to take steps to ameliorate to some extent at least the hardships of the unemployed, the aged, and other groups. To this can be traced the origin of prepaid medical-care programs in this Province.

The Medical Welfare Plan

In 1935, the provincial government requested the Ontario Medical Association to take over the administration of this provincial plan. The Welfare Plan had been set up the previous year and had been administered by the municipalities throughout the Province. The O. M. A. accepted this responsibility and appointed a Medical Welfare Board, which administered the Welfare Plan at first through the District Branches and Academies affiliated with the O. M. A. For the past four years, the Plan has been administered by a central management committee of the Medical Welfare Board with headquarters in Toronto.

Under this plan, physicians are paid at a percentage of minimum rates for office, home calls, confinements in the home, and mileage. Those eligible for this service are relief recipients, old-age pensioners, blind pensioners and mothers'-allowance beneficiaries. There are at present approximately 130,000 citizens covered by this plan. The present cost is eighty-five cents per person per month.

Windsor Medical Services Incorporated

This Corporation has its origin in the experience of both the profession and the public during the last great depression. In 1937 Windsor Medical Services, with the endorsement of the Ontario Medical Association and the sponsorship of

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the Essex County Medical Society, was incorporated under a provincial charter. Actual operation of their program began early in 1939.

The new Corporation offered a very comprehensive medical, surgical and obstetrical plan and later a limited surgical and obstetrical plan on a prepayment basis to employees of firms located in metropolitan Windsor. These plans were offered primarily to the firm and the agreement was made directly with the firm on an annual basis. The profession was organized under the scheme to the extent that practically all physicians in the Windsor area—I think there are but five exceptions—are participating physicians and are members of the Corporation with a vote at the annual meeting. Participating physicians' agreements were drawn up in such a manner in the beginning that a payment made by the Corporation was accepted as full and final payment regardless of whether the physician rendering the services was a specialist or not. Later these agreements were changed to allow participating physicians to charge the patient over and above the payment made by the Corporation where services are rendered to single subscribers with an income above $3,000 and to married subscribers whose combined income exceeds $6,500.

Very little change has been made in the plans originally offered by this Corporation. However, it is worthy of note that the limited surgical and obstetrical plan has not had a very popular appeal and only a small percentage of total enrolment is covered under this plan. Most subscribers prefer the more comprehensive plan and the Corporation have enrolled some 77,000 persons under this plan and only about 1,200 in the limited one. During the years 1947, '48 and '49 the expansion of this Corporation has been almost phenomenal, as up to 1946 they had enrolled only some 17,000 people.

Windsor Medical Services' policy has been the enrolment of employees of a common employer with payroll deductions available for monthly subscription rates. Although an exception to this policy has been made in one or two cases, notably Ford of Canada where some 2,000 employees pay on a group-collection basis, the great majority of firms, including Chrysler and other well-known names, are today on the annual payroll-deduction basis. The Ontario Medical Association endorsed this Corporation and it is looked upon as an interesting and successful program in a centre which is largely industrialized.

Associated Medical Services Incorporated

Associated Medical Services is incorporated under a provincial charter with headquarters in Toronto and has been in operation for some thirteen years. Contracts to pay for medical services of subscribers were written on an individual and later a group basis. In arranging to supply medical services to individuals, this Corporation attempted the most difficult task in the field of prepaid medical care. Exclusions against pre-existing conditions have to be written into individual contracts, which makes the service offered a rather limited one. The initial subscribers were largely Civil Service employees of the Ontario Government.

The medical-care plans of this Corporation offered to the public, either as individual contracts or on an employee group basis, have been changed on occasions during the years the Corporation has been in operation. Today the

individual contract is limited in its number of participants compared to the group contracts. In 1948 the group plan was broadened, and the available benefits include medical, surgical, and obstetrical care in hospital, and the treatment of proven fractures, confinements, and certain minor surgical procedures including the treatment of lacerations outside of hospital. Office and home calls for ordinary illness are not included. Hospitalization may be included in this service if so desired by the subscriber. This plan has been very successful and today approximately 60,000 people are enrolled under Associated Medical Services agreements.

The basis of compensation is the Corporation's own schedule of fees, and payment is made direct to the subscriber. There has been no definite organization of the profession as participating physicians in the program of this Corporation. The Ontario Medical Association and the Academy of Medicine of Toronto have supported the Corporation as an interesting program originating in a large urban centre where the costs of medical care are liable to be relatively high.

Hollinger Medical Services

The Hollinger Medical Services have no charter from the provincial government. The local Medical Society agreed to assist in a different kind of experiment in the North Country in which the doctors would provide medical services to mine employees and their dependents in much the same manner as private practice is conducted, except that the employees and their dependents are under contract to pay money into a central office at a monthly rate. Separate contracts are written with each company and the program can be extended in the northern area provided the doctors in the area of the mine concerned are agreeable to working under the plan.

There are some 25,000 persons in this program which has been in operation only a few years. The Ontario Medical Association have followed this experiment with additional interest because of the vastness of the area over which it is essential that medical services be improved and extended.

The Physicians' Services Incorporated

The Board of Directors of the Ontario Medical Association in February 1947 set up a special committee on voluntary prepaid medical care to implement the desires of the medical profession as expressed in the plebiscite held in the latter part of 1946. The Committee recommended that a new Corporation under the name of Physicians' Services Incorporated should be formed, seek a charter, offer a plan for complete medical, surgical and obstetrical care, and go into business as soon as possible. The terms and conditions governing such a corporation and its objectives were presented to the Council of the Ontario Medical Association in May 1947 as a preliminary report to Council. The report was adopted by Council and received almost unanimous support in the general assembly of the O. M. A. A charter was granted to the new Corporation under the Companies Act by the provincial government in September and the first subscribers to the plans offered by the Corporation were enrolled in February 1948.

It should be understood that Physicians' Services Incorporated is a non-profit corporation operating under charter subject to laws of the Ontario Companies Act, designed to interpret and apply in a practical way the policy of the O. M. A., the desires of its member societies and academies, and the suggestions of individual doctors in the matter of arranging for the provision of medical services to the people of Ontario. Every doctor in Ontario may express his views on health insurance through this corporation.

The Corporation is governed by a House of Delegates made up of members, both professional and lay, elected annually. The Board of Directors of the O. M. A. was given a representation of 16 delegates, and the remainder are elected by county or district medical societies, academies and branches of the Corporation. The House of Delegates is convened annually. This House elects a Board of Governors consisting of nine members, six physicians and three laymen. The term of office is for 2 years. Under ordinary circumstances the Board meets twice a year. The day-to-day administration of the Corporation is carried on by an Executive Committee consisting of the president, vice-president, and two members of the Board of Governors appointed by the Board along with the general manager. The Executive Committee holds regular monthly meetings.

Every practising physician in the Province of Ontario is eligible to become a participating physician with the Corporation if he so agrees. At the present time there are approximately three thousand participating physicians throughout the province; these consist of general physicians and certificated specialists. According to the agreement signed with the Corporation, the former have agreed to accept payment from the Corporation for services rendered to subscribers as full and final payment for such services; the latter, however, when rendering services to subscribers within their speciality are allowed to charge subscribers over and above the amount paid by the Corporation. The basis of compensation is the latest revised minimum O. M. A. schedule of fees.

The Corporation offers to groups employed by a common employer, and where pay-roll deductions are available, two medical-care plans: a medical, surgical and obstetrical plan which is broad in its available services, and a limited surgical and obstetrical plan. In neither plan are there exclusions for pre-existing or chronic conditions nor is a medical examination or physician's report required prior to enrolment. There are, however, waiting periods for confinements, refractions, and certain elective surgical procedures such as tonsillectomy, herniotomy, and reparative surgery of the female genital tract. For enrolment of a group, the Corporation requires 75 per cent participation, with a minimum of 15 subscribers for the medical, surgical and obstetrical plan, and a minimum of 5 in the case of the surgical and obstetrical plan. The number of subscribers and their dependents enrolled to date in these two plans is approximately 60,000.

It is only fair to state that there are difficulties in administering such a program, and also criticisms from the physician, the subscriber, and the public in general. However, it would appear that none of the difficulties are without solution, nor criticisms without reasonable explanation. The participating general physician is unhappy in certain instances when he is unable to charge his patient

a fee over and above that allowed by the Corporation. He feels that he is being discriminated against in contrast to the participating specialist who is allowed to charge over and above the Corporation's payment. One solution to this problem may be the arrangement of income limits for subscribers, in which the participating general physician would be allowed to charge a patient over and above the Corporation's payment where that patient is above a certain income limit. The participating specialist physician complains of his increased secretarial costs necessitated by the double billing procedure, i.e. he sends his account to the Corporation, and also one to the patient for the amount of his fee over and above the payment made by the Corporation. The subscriber in some instances refuses to reimburse the specialist for the amount and in such cases everyone is unhappy, the Corporation, the specialist physician, and the subscriber. The general public are critical to the extent that they are unable to participate in this program unless they can enrol within a group. In other words, there is a certain and real demand for individual participation. I can assure you that the Corporation is aware of this demand, and is giving every consideration to its solution. The risk involved, the administrative costs, and the lack of adequate data on the costs of individual coverage are some of the difficulties to be overcome before such a plan can be included in the Corporation's program.

The Board of Governors would welcome as an experimental group a small municipality in which there would be at least 75 per cent participation of its resident members on a regular monthly prepayment scheme, whether it be by per-capita tax levy or collection through a central agency of the municipality. It is possible that some of you may be able to assist in presenting this plan to a municipality and in encouraging its adoption.

Conclusion

I have discussed with you briefly in certain instances five voluntary prepaid medical-care programs now operating in this Province. I have indicated the growth of certain of these programs over the past years. It should be pointed out that during these years it has been possible for these organizations to operate without coming under the jurisdiction of the provincial Department of Insurance. However, it is expected that a recently passed Act—"The Prepaid Hospital and Medical-Care Act"—will be proclaimed shortly and all the non-profit and/or co-operative programs will then be under the Department of Insurance by virtue of this particular legislation. Such voluntary programs sponsored or operated by the profession are still on trial in Ontario. Their operation and progress are being watched very carefully and critically by the public, government, and I hope, the profession. Their success depends in no small measure on the whole-hearted and honest co-operation of every member of the medical profession. The profession through their Corporations are applying a systematic business technique to the solution of a social and economic problem. The Corporations operating these programs are collecting daily vital data on medical-care costs and morbidity which will be invaluable to organized medicine in their negotiations with government on a health-insurance program for this country.

Letter from Great Britain

The Medical Officer of Health in Great Britain (II)

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IN my July letter we saw the Medical Officer of Health as the guardian of the community health; he seemed to us to be in a doctor-community relationship, handling the problem of community health as a whole and concerned to co-ordinate all medical advice on community health problems. As the specialist in problems affecting community health he was seen to be directly concerned both with the environment and also with the care of susceptible groups of individuals where health is vital to the community and, less directly, with the proper planning of facilities for the cure of disease which are themselves so intimately bound up with social and preventive services. In our brief sketch of him he was the leader of a team operating in an area containing 100 to 150 thousand souls; equipped with all developments of modern medicine he seemed to be prepared to take his coat off to the job and willing to regard anything as in the day's work, so long only as it might help him to keep the community healthy. We had no doubt about the scope of work for him in the second century of his life in Britain but we considered that the great new tasks facing social medicine would probably be better undertaken by new local authorities for community health covering the same areas as those established for hospitals.

From this point we can profitably examine in more detail what should be the daily tasks of an ideal Medical Officer of Health in an ideal State. For this it is convenient to follow the division of responsibility already suggested. The Medical Officer of Health can protect the health of the community in one of two capacities; in the one he is mainly a seeker after truth and adviser, and in the other he is a chief executive officer. In the first capacity he must have the general duty 'To acquire an accurate knowledge of the influences—social, environmental and industrial—which may operate prejudicially to health in the area, and of the agencies, official and unofficial, whose help can be invoked in amelioration of such influences'. This wide duty, which must involve him in enquiring into all the circumstances of his area and reporting thereon, is apt to be

overlooked amidst the increasing burden of administration and committees. It is so important that it needs continual emphasis, particularly where the health service is divided as in Britain, for it serves to stress the importance of arrangements for protecting community health in contrast with the more limited objective of curing the sick; if properly done it requires study and criticism of the work of all bodies, statutory and non-statutory, in the health field. The Medical Officer of Health must take a broad view of the health of the people in his area, looking from a vantage point which brings into perspective the whole complex structure of society, and so countering those influences which tend to view health through the windows of a hospital ward. An important element of this general duty is research into the problems of community health—with full statistical backing; the complexity of modern problems and the new weapons in the hands of university departments, and such national institutions as the Medical Research Council should not obscure the value of field research by the Medical Officer of Health, particularly when linked with university departments.

In his capacity of adviser he must study and advise on the health aspects of all forms of activity in which there may be important, even if secondary, influences upon health. The boundaries of social medicine cannot be accurately defined but they certainly extend into the spheres of work of many other officials and the Medical Officer of Health must insist on being provided with such information as he thinks necessary to enable him to safeguard the health of the community. The more obvious examples of this duty in operation are the need to advise on all aspects of new housing, school construction, town planning, water supplies, sewage disposal, community centres, the building, use and day-to-day management of schools for handicapped children, canteens, and so forth. The need for such advice is often painfully obvious after the event; for example, I recently visited a new secondary school in which the children were admirably served with modern equipment, including wash basins, soap and towels; yet the water closets were entered directly from the playground and there was no easy access to the washbasins.

It is not easy to frame within so limited a compass the vast range of possibilities for advice on community health. What has been said does little more than attempt to illuminate a large hall with a small candle. The Medical Officer of Health must be the voice of community health in our public affairs; in all his many contacts with members of committees, with colleagues in his own profession, with fellow officers concerned with other services, with those in charge in industry, with teachers, and with everyone interested in the long-suffering public, he can present a point of view which otherwise may be lost; and who is to know whether, when the total of all our actions is computed, his timely words may not have contributed most to the preservation of the health of the community in which he lives.

Great as may be the possibilities for promoting and safeguarding health by advising others who are themselves responsible, it is yet in an executive capacity that most people see the Medical Officer of Health as a guardian of community health. As the head of an important department of State, able to

command, to develop and to expand, to ask for a budget and to be free to spend within it, to speak authoritatively to controlling committees to which he is directly responsible, it is in this commanding position that he can do the most immediate good. The community health services which should fall within this more limited horizon can be considered under two broad headings—(1) Those concerned with the environment, and (2) those concerned with the person. The following table suggests a comprehensive cover; in many respects, alas, in Britain and no doubt in most other lands it is, of course, little more than a dream:—

1. Environmental Health Service.
   - (a) The Physical Environment.
   - (b) Epidemiology.

2. Personal Health Services.
   - (a) *Of general application:*
     - (1) Health Education
     - (2) Care and After-Care.
     - (3) Health Centres and Survey Clinics.
     - (4) Ambulance Service.
   - (b) *Of application to special groups:*
     - (1) The Care of the Mother and Young Child.
     - (2) The Care of the School Child.
     - (3) The Care of the Deprived Child.
     - (4) The Care of the Adolescent and Adult in Industry (Industrial Health).
     - (5) The Care of the Mentally Ill and the Mental Defective.
     - (6) The Care of the Aged.
     - (7) The Care of the Handicapped.

There is little purpose in setting out in detail the services under each of these headings; I shall, therefore, confine myself to a few salient points, not in any sense as a comprehensive account of the full scope of work but rather more as an indication as to the correct course of action where differences of opinion exist. As this is the day-to-day work with which you are all closely concerned, if it proves too commonplace you will, I hope, write to the Editor to ask him to cable me to desist. With your permission I intend to select at random from the above table and to start with 'The Care of the Mother and Young Child'.

The Care of the Mother and Young Child

The preventive care of the mother and her young child, which has been one of the most successful developments of social medicine, has lost none of its importance to present-day society. The truth of this is recognised in Britain in the National Health Service Act, which makes little, if any, alteration in the responsibility of the Medical Officer of Health for this work. The service entails provision for ante-natal care, post-natal care, domiciliary midwifery, infant welfare, the care of the unmarried mother and her child, and the day-time care of the child whose mother is at work (in nurseries or by minding). Most of this work is sufficiently well known and appreciated to make comment unnecessary and the following few paragraphs are concerned only with controversial matters where it is important to emphasise the needs of this priority group whose

peculiar susceptibility makes its protection of vital importance to community health.

There is much concern here that three administrative bodies should now be dealing with maternity. Nevertheless, if the Medical Officer of Health exercises a co-ordinating function we cannot see that this involves delay or consequent sacrifice of life. The supreme necessity is not for unified control but for adequate co-ordination. If, however, unity of administration is sought, we emphasise that the responsibility should rest with the Medical Officer of Health, who is a trained administrator with sufficient knowledge of obstetrics to know what each worker in the team requires, and who moreover has an intimate knowledge of the people for whom the service is required. Through his health visitors, midwives and clinics he is in the closest possible touch with the obstetric needs of his area.

There is also some misunderstanding as to the true function of a maternity home. Homes for normal midwifery should not be regarded as hospitals. Their proper function is not to provide expert attention for complicated cases, but to offer to the average mother better facilities for confinement than she would be likely to obtain in her own home. A health authority should be able to provide and staff homes for normal midwifery. Incidentally, the training of Part II midwifery pupils would be greatly facilitated by such an arrangement.

The birth of a baby, as a physiological process, should take place in the family home, and it should be one of the objects of the community health service to make this possible. The proposals of the Royal College of Obstetricians and Gynaecologists for a 75 per cent delivery of babies in institutions are neither desirable nor wholly practicable. For many years an unsatisfactory environment will make some institutional deliveries of normal midwifery essential, but we should now be striving not to multiply institutional beds but to make homes fit for babies to be born in. A figure of 50 per cent institutional delivery is a reasonable upper limit to meet present-day contingencies. Full support should be given to the training and practice of domiciliary midwives. Furthermore, in view of the importance of domiciliary midwifery to community health, in a divided health service this part should fall to be administered by the Medical Officer of Health with supporting staff; any suggestion that the service would be better conducted by, for example, a regional hospital board (through management committees) seems to us to ignore the fundamentals of the situation.

A well-organised service for ante-natal care will reduce to a minimum the occurrence of untoward events and secure that all or most women in need of special care will have been removed to hospital. The fact that such complications occasionally arise at home does not justify the centring of the whole midwifery service upon the hospital. It follows that a domiciliary midwifery service should make provision to meet all contingencies. It should include:—

(i) The provision of special clinics staffed by an obstetric consultant (in addition to ante-natal clinics for routine supervision and teaching), to which special cases of difficulty can be referred. These centres should be in centres of population, in general away from out-patient departments.

(ii) The provision of hostels in the form of rest homes for mothers not in need of hospital care, and special provision for the unmarried.

(iii) Arrangements for care by a general practitioner. Every mother should (as in Britain now) be able to book a general practitioner to be responsible for her pregnancy, labour and lying-in at home. The general practitioner should undertake full responsibility (assisted by routine supervision and teaching at a clinic); he should (in collaboration with the Medical Officer of Health) arrange for cases of difficulty to be booked for institutional delivery; he should be enabled to call in an obstetric specialist (or the 'flying squad' mentioned below) in case of sudden unforeseen emergency.

(iv) Arrangements whereby a midwife can obtain assistance from a doctor; if no doctor has been booked she should be able to call in any general practitioner obstetrician. (In such cases the fee can properly be borne by the community health authority.)

(v) Arrangements for a flying squad to be available to deal with emergencies arising during pregnancy, which have to be dealt with in the patient's own home; the midwife must be in a position to call upon such help as a life-saving measure.

The Medical Officer of Health must see that every expectant mother is offered from some source both (i) supervision and teaching, and (ii) medical care. In a divided health service ante-natal care may be obtained from so many different sources that there is a risk of confusion, which may lead either to overlapping on the one hand, or to oversight on the other. There is a prevailing misunderstanding as to the relative function of a clinic provided by the health department and the care by the family doctor and/or hospital. The clinic can provide continuous supervision and detailed teaching; where a private practitioner is booked, or a bed is earmarked in a hospital or maternity home, the medical care thus afforded does not eliminate or supersede the need for regular supervision and teaching at a clinic. Where mothers attend clinics, the general practitioner or hospital must, of course, be kept informed of all material findings at the clinic.

The staffing of such clinics, which has received so much attention of late, does not seem to present undue difficulty. The use of whole-time doctors who undertake other work in the child health service of the health authority is, in view of the particular purpose of an ante-natal clinic, not unsatisfactory, despite the divorce from active midwifery; alternatively, a general practitioner obstetrician can be engaged in areas where conflict with other practitioners in relation to private patients is not likely to occur; or the joint appointment of whole-time officers to be engaged in the combined duties of ante-natal work in the clinics and obstetrics in the hospital. These three methods give the best opportunity of providing persons of mature outlook and some permanency, which is essential to success in the preventive work of an ante-natal clinic; they are superior to an arrangement whereby junior hospital staff enter the field.

Now that the danger of loss of life in childbirth has been so greatly reduced, we should be striving increasingly to limit the amount of damage to health and strength, and it is certainly time that the post-natal clinic is developed to play

a part in this campaign equal to that of the ante-natal clinic in earlier years. There is little doubt that the reduction of maternal disabilities, whilst primarily dependent upon adequate ante-natal care, good conservative obstetrics and proper nursing during the puerperium, could be further reduced by thorough after-care through the post-natal clinic.

In view of the importance of domiciliary midwifery to the community health, the Medical Officer of Health is vitally concerned with the standards of medical practice in obstetrics. The urgent need to improve these has justified the creation of a special practitioner (the G.P. obstetrician). To some extent the value of this step has been lost by the slender financial difference between the fees paid by the State to the ordinary practitioner and those paid to general practitioner obstetricians (£5 and £7 respectively). Nevertheless, the step taken is important and, in view of the increase in safety to the mother confined at home, will help to strengthen a domiciliary midwifery service and the centring of midwifery on the home. Many will wish to see a tendency to reduce the numbers of G.P. obstetricians as a means of making a second tier specialist service; one effect of this would be to secure that an increasing number of ante-natal clinics and maternity homes will fall to the care of the G.P. obstetrician. Others emphasising the need for the family doctor to take an interest in the whole life of his families will wish to see the opposite, that is, a tendency to raise standards of general practitioner midwifery everywhere so that every family doctor becomes a G.P. obstetrician. The latter tendency, in the long run, will be most likely to benefit community health.

The unmarried mother presents a special problem and, therefore, requires special consideration. In such a case the tact of an experienced health visitor is invaluable to the Medical Officer of Health in investigating the home conditions and the attitude of the girl's parents, in assessing the need for institutional care and arranging suitable accommodation if required, in weighing up the possibility of the mother being able to support her child, in arranging for assistance of all kinds to be given to help in this direction, in advising adoption in certain cases and in such cases outlining the machinery involved.

The protection of infant health is closely related to the health and welfare of the mother. The traditional linking of maternity and child welfare has, in our view, quite properly emphasised this fact and should be retained. Mothers have to be taught, through health visitors and doctors, how to keep healthy babies fit and well; also, babies and young children have to be examined from time to time, and advice given when any departure from the normal is observed. The advice may be given either in clinics or in patients' own homes. Advice on protection against certain infectious diseases (notably diphtheria and smallpox) is essential, and facilities must be made available whereby immunisation and vaccination can be carried out. Treatment of illness should not be included but periodic medical examinations should be generally arranged, and certain food-stuffs can with advantage be provided either free of cost or at reduced price. The priority dental service must be extended to this group. Specialist provision

must be made for the care of premature babies in their own homes. For this incubators, oxygen tents, nursing facilities, and expert advice may be required.

In modern society the day nursery seems to us to be a necessary protection for infant life and health and it is proper that its administration should be the responsibility of the Medical Officer of Health. Day nurseries must be regarded as fundamentally for health purposes and admission should be arranged on those grounds. Priority may properly be given to children whose mothers are not at work if circumstances demand it. Day nurseries have in fact proved to be of inestimable value for those children whose parents, either through poverty or for other reasons, are unable to give them the care and sustenance they require.

Some Aspects of the Organization of Public Health and Hospital Laboratories

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THE PUBLIC HEALTH laboratory is recognized as one of the essential parts of a well-organized department of health. It has become so well established and its services so much taken for granted that there may be justification for a reassessment of its functions and objectives. When, a year or more ago, our department was requested to assist several of the provincial laboratory directors in studying the needs of their public health laboratories and to prepare plans for the orderly expansion of laboratory services, the invitation was readily accepted since it provided an opportunity to participate in constructive organization. Early in the study it seemed advisable to include hospital laboratories to determine whether or not they could be included as part of an overall plan to extend public health laboratory services to local and district medical officers of health, while at the same time making available to the small hospital laboratories the assistance of professional scientists, such as chemists, bacteriologists and pathologists. The following comments are presented with the objective of pointing out some existing laboratory problems and to suggest that consideration be given to practical solutions.

In the past few years, science has contributed so much to diagnostic, therapeutic and preventive medicine that from time to time it is necessary that public health laboratory workers take time out from their daily duties to question existing standards and programs. The use of drugs, such as sulphonamides, antibiotics, cortisone and ACTH, to mention only a few, has had far-reaching effects in therapeutic medicine and is likely to have profound effects on many aspects of preventive medicine. Since the public health laboratories occupy a senior position in the field of preventive medicine and the hospital laboratories an equally important role in clinical medicine, it is necessary that the past and present responsibilities of these laboratories be reviewed before any attempt is made to plan for the future.

Public health laboratories as they exist today grew out of the earlier investigations into the etiology and pathogenesis of regular occurring epidemic and endemic diseases, such as typhoid fever, diphtheria, cholera, tuberculosis

Presented before the Public Health Administration Section at the thirty-eighth annual meeting of the Canadian Public Health Association, held in the King Edward Hotel, Toronto, June 12-14, 1950, in conjunction with the first meeting of the Ontario Public Health Association.

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and syphilis. For example, before the days of diphtheria toxoid, an epidemic of diphtheria required the prompt examination of thousands of throat and nasal swabs which could be undertaken only in a special laboratory staffed by experts. Similarly, epidemics of typhoid fever required the examination of blood and stool specimens, and such studies were usually followed by the bacteriological examination of hundreds of water or milk specimens. Each province, therefore, sooner or later established a public health laboratory to aid in the control of communicable diseases. These public health laboratories were soon assigned other duties not concerned with diagnostic services related to epidemics but rather with intensive efforts to prevent such outbreaks. Thousands of water and milk samples were tested every month to ensure the safety of supplies, and problems of restaurant sanitation were explored in collaboration with other branches of the health department. Epidemiological studies related to the reservoirs of disease, such as brucellosis and salmonella infections, became of importance as the major epidemic diseases were controlled. Present-day public health laboratories are therefore equally concerned, and properly so, with preventive services and the diagnosis of communicable diseases.

Several years ago, public health laboratories became involved in services related to non-infectious diseases or diseases believed to be non-infectious, such as cancer, and in most provinces a central pathological service for the diagnosis of tumours has been established. More recently, several provinces have established industrial hygiene laboratories to aid in the investigation of industrial conditions which may affect the health of workers.

The staff of public health laboratories have made many outstanding contributions to the improvement of health conditions and they deserve the highest commendation for their faithful devotion to their scientific ideals. For far too long some of the provincial public health laboratories have been overcrowded, poorly equipped and understaffed. Today the increasing demands for the highest level of scientific work, together with the increased public interest in all phases of health, suggest that immediate consideration should be given to strengthening and extending the services of the public health laboratories.

Whereas public health laboratories grew out of the mass problems of the community, particularly communicable diseases, hospital laboratories were developed to serve the needs of the hospitalized patient. The great impetus to hospital laboratories began with the science of pathology in the early days of the present century. On the North American continent, it was the famous Dr. Welch, pathologist of the Johns Hopkins Hospital, who together with his colleagues Osler, Kelly and Halsted demonstrated the value of combining laboratory studies in pathology, chemistry and bacteriology with clinical investigations, and it was largely due to their efforts that Johns Hopkins became the leading hospital in North America during the first quarter of the 20th century. Today medical students are trained not only in the technique of clinical studies but in the proper use of scientific laboratory aids. The larger hospitals, particularly those associated with teaching centres, maintain excellent laboratories staffed by highly trained experts, such as biochemists, bacteriologists and pathologists.

In general, hospital laboratory services are thought of as being under the direction of a medically qualified pathologist. While this may be true in a few

of the larger centres, it is certainly not true for the great majority of hospitals. The Royal College of Physicians and Surgeons lists a total of 104 specialists certified in pathology or pathology and bacteriology. Forty-six of these are located in three major centres. The Royal College also lists 29 certified specialists in bacteriology, and 23 of these are also located in three major centres. In comparison, Canada is provided with approximately 700 hospitals, 72 of them with a bed capacity of more than 200. These figures simply emphasize the fact that there are not nearly sufficient medically qualified specialists in bacteriology and pathology to meet hospital requirements.

Furthermore, very few hospitals have been able to encourage graduate biochemists and the very few graduate bacteriologists to take up hospital work, because of the very poor pay, the inadequate facilities and the burdensome volume of routine. Because of this shortage of medically qualified bacteriologists and pathologists and the failure to attract science graduates in bacteriology and biochemistry, the great bulk of hospital laboratory work is performed by technicians with little or no professional supervision, and all too frequently these technicians are asked to carry out unfamiliar procedures because it is considered to be a matter of life or death.

The problem of accurate and precise laboratory procedures in hospital laboratories is a subject that is being recognized in many parts of the country. The United States Army Medical Corps(1) instituted a proficiency survey in 14 Army and Air Force laboratories. It will be appreciated that army medical laboratories have generally been subjected to much more control than most civilian laboratories and one would expect them to maintain a higher standard of proficiency. Furthermore, they have a standard reference text available in all laboratories, their technicians are centrally trained and they work under fairly close supervision; yet the results of this survey were, to say the least, alarming. Only two of the ten laboratories identified at least 80 per cent of the bacterial cultures that were submitted. In biochemistry, the results were equally bad. Only one out of thirteen laboratories reported with an accuracy of 10 per cent or better. The range in the results reported varied from 100 per cent too low to 794 per cent too high. Allowing a $\pm$ 10 per cent error, only two of the laboratories reported 80 per cent of glucose determinations correctly.

Belk and Sunderman(2) reported the results of a similar proficiency survey in hospital and private laboratories in Pennsylvania, and 54 per cent of the reported results showed errors ranging from 89 per cent too low to 941 per cent too high.

These matters have been discussed with many Canadian clinicians, surgeons, and laboratory workers and they all agree that one of the basic services required in hospitals is a laboratory capable of providing accurate scientific data. From their comments and our observations, there is no reason for a feeling of complacency about the accuracy of much of the work performed in a number of Canadian hospitals. Many biochemical procedures are carried out using photoelectric colorimeters which have been provided with pre-calibrated curves and standardized reagents. The use of these instruments has undoubtedly resulted in a false sense of security to the untrained worker, for in many cases it has been noted that little or no use has been made of standard solutions. Many of the newer procedures require the use of equipment such as the polarograph, spectro-

photometer and flame photometer. In proper hands, these instruments are capable of yielding highly accurate results, but their use involves much more training than the simple ability to follow the manufacturer's operating instructions. It should be stated that because a person has been trained to follow cook-book style techniques for a series of biochemical tests, he is not necessarily a chemist qualified to undertake a myriad of complex biochemical determinations.

In the field of haematology, it has been noted that even the relatively simple determination of haemoglobin is not carried out with any high degree of uniformity from institution to institution. The discovery in 1940 of the Rh factor and the subsequent intensive investigations have resulted in many demands for antigenic studies which can be undertaken only by an individual with highly specialized training.

Pathological services are seriously overburdened with a continuously increasing volume of work. The establishment of free cancer clinics and the increase in hospitalization resulting from various insurance plans, together with the added requirement in some provinces that all surgical specimens be examined, has established such a heavy routine that most institutions find it most difficult to maintain an adequate service. It is obvious that some plan should be made to relieve the relatively few pathologists of much of the day-to-day routine tissue examinations.

Bacteriological tests are not carried out in many hospitals, and many of them are not provided with even the basic equipment for carrying out bacteriological procedures. This is a most serious matter and one which calls for early correction. While the advent of sulphonamides and antibiotics has simplified the treatment of many bacterial diseases, nevertheless the use of these drugs has presented many new problems, such as drug-resistant strains of bacteria. Bacteriological techniques are today more complicated and call for a high level of technical skill if adequate and reliable data are to be made available to the medical profession. Very few institutions have established any system for the regular testing of the sanitary quality of eating utensils, sterilizing processes or the many other ways in which the science of bacteriology could be applied in hospitals. This almost complete lack of bacteriological services cannot be justified but must be condemned as a most serious and dangerous inadequacy.

The suitability of laboratory accommodation and equipment varies within wide limits. Some hospitals provide first-class laboratory accommodation, while in others it is totally inadequate. Similarly, much of the equipment is obsolete or of very poor quality.

The training of technicians leaves much to be desired. Some insititutions have found it impossible to maintain a sufficient number of thoroughly qualified and experienced technicians to provide a satisfactory level of practical instruction. In some cases, technicians with only a few weeks' training have been left to carry out much of the routine work. The matter of training has been discussed with many technicians and there is almost a unanimous desire for better training and a better understanding of the many procedures which they are requested to carry out. This has been particularly noted in the rural areas, where one is frequently embarrassed by the number of detailed technical questions which have been asked.

If one accepts the principle that a large proportion of Canadian hospital laboratories need some form of professional supervision, the question immediately arises as to how such supervision can be provided. It must be recognized that the great bulk of hospital laboratory work must be carried out by technicians and that it would be impossible to provide all hospitals with professionally trained scientists.

Some attempts have been made to solve this problem. For example, the London County Council (England) has established and is operating a system of branch and satellite laboratories so designed as to render the finest technical services to hospitals as well as to deal with the public health problems of the community. The W. K. Kellogg Foundation of Battle Creek, Michigan, has outlined in a brochure its thoughts in respect to medical diagnostic services and it draws attention to the methods used by three hospitals in southern Michigan to share the full-time services of a radiologist. With minor exceptions, there have not been any serious attempts to co-ordinate public health and hospital laboratory services in North America. Several of the States have introduced a system of licensing for private diagnostic laboratories and in at least one State all workers are required to have a licence to perform medical diagnostic tests.

Many of our provincial laboratories have been gradually extending their services to include some clinical laboratory tests. In Prince Edward Island, the provincial public health laboratory has assumed responsibility for the performance of all laboratory procedures in all the hospitals. Several provincial laboratories have provided travelling experts in hospital laboratory procedures and others have established training courses for hospital technicians. On the other hand, several provinces have subsidized a few selected hospitals to supply public health laboratory services to the local areas and in general to serve as a branch laboratory. However, it would be most unwise and in many cases unacceptable to suggest that supervisory responsibilities for hospital laboratory services be assigned to many provincial laboratories. In any scheme which would place greater burdens upon provincial public health laboratories, consideration must first be given to strengthening the central laboratories by providing adequate staff, space and equipment to enable them to undertake such additional responsibilities.

The program of National Health Grants has stimulated the study of all kinds of health problems, and every time a new activity is undertaken there is almost sure to be an associated increase either directly or indirectly in the activities of the public health and hospital laboratories. This effect has been noted by all laboratory directors and it is causing them considerable concern, for, without exception, there has been a steady and marked increase in the volume of work and the number of enquiries addressed to them. More recently, public health workers have been showing a marked interest in the mass application of diagnostic procedures (multiphasic screening) for diseases such as diabetes and cancer, and it is only a matter of organization and time until public health laboratories will be asked to provide these and many similar services on a routine basis.

Hospital laboratories are facing increased difficulties in providing technical

aids to clinicians, and this problem is becoming daily more serious with the rapid advances which are being made in all fields of medical science. It is becoming even more acute with the development of more prepaid plans for medical and hospital care and the resulting increased demand for laboratory services. There is little doubt but that the responsibility will rest largely with governments to provide by one means or another completely adequate laboratory services. Therefore, it seems obvious that some scheme of voluntary supervision together with a continuous program of staff training would be the most economical and practical method of effecting an immediate increase in the quality of hospital laboratory services and at the same time help the hospitals to deal with the rapidly growing demands for more tests and new procedures.

Summary

The clear distinction between the activities of public health laboratories and hospital laboratories which has existed during the past fifty years is not quite so obvious today. There is first the problem of maintaining the health of the presently healthy population and, secondly, the problem of dealing with those who are currently ill. From the standpoint of public health, there is no clear distinction between the two. Since their inception, public health laboratories have developed and extended their interests in the field of preventive medicine, although diagnostic services related to infectious diseases and epidemics still occupy a major place in their activities.

More recently, several public health laboratories have extended their services to include many procedures of a purely diagnostic nature in order to assist the smaller hospitals and the rural medical doctors. Others have either established training courses for hospital technicians or provided a travelling expert to visit hospital laboratories and assist the technicians. Furthermore, it is evident from several published surveys and the investigations being carried out in Canada that there is a growing realization that many hospital laboratories need and, in fact, want a great deal of assistance in their laboratories. The immediate problems, therefore, are how to plan for the provision of such assistance and what organization is best fitted to undertake these additional responsibilities. It is obvious that there is not likely to be any uniform pattern acceptable to all provinces. Even within provinces, it is certain that different schemes based upon local resources and geographical problems will be required. Finally, it must be stated that there is marked divergence of opinion among laboratory directors as to whether or not the present public health laboratories should undertake any responsibilities for the quality and accuracy of hospital laboratory procedures. Furthermore, it is anticipated that there will be hospitals completely opposed to any form of supervision and it is hoped that, whatever kinds of schemes are finally introduced, it will be on a purely voluntary basis and of such a high order that with few exceptions all hospitals will be anxious to participate.

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Keynotes for the Future in Vital and Health Statistics

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THE Vital Statistics Section of the Canadian Public Health Association was organized in 1928. Under the successive chairmanship of Dr. R. H. Coats, the late Mr. S. J. Manchester, the late Dr. William Warwick and the late Dr. Eugene Gagnon, Dr. Paul Parrot and others, the groundwork for the development of an active association of Canadian workers was laid and valuable contributions in vital and health statistics were made through the work of special committees. These contributions include studies on medical certification procedure, the phraseology of the physician's statement of cause of death, the revision of the International List of Causes of Death, the education of physicians and medical students in certification, the definition of stillbirth, the classification of causes of stillbirths, the classification of births and deaths by place of residence, the confidential death certificate.

During these past twenty years the expectation of life at birth among males in Canada has increased from 60 years to 66 years. The infant mortality rate has dropped from 89.5 per 1,000 live births in 1928 to 43.7 in 1948; the maternal death rate has declined from 5.6 to 1.5 per 1,000 live births; the tuberculosis death rate has dropped from 81.5 to 37.1. Meanwhile Canada's population has increased from 10,000,000 to 14,000,000 and the number 65 years of age and over has increased from 575,600 to 1,016,000.

The Vital Statistics Section of the Canadian Public Health Association has membership drawn from all parts of the country and is a logical body to serve as a clearing-house in vital and public health statistics. If we accept this responsibility, our membership and interest must be extended; active and nationally representative committees maintained; close liaison with national medical and health associations established; and the strong relationship with the Dominion Bureau of Statistics and the federal and provincial departments of health preserved.

This Section should strive to assist the Dominion Bureau of Statistics and other governmental agencies by conducting studies and making reports and recommendations on such topics as may be indicated. Many problems are ripe for discussion in the newer fields of morbidity statistics, cancer statistics, appraisal of public health work, medical care statistics, etc. These are additions to problems for which committees are already set up and on which work should be continued. It is desirable also to initiate some Canadian studies on joint-cause

Presented before the Vital Statistics Section at the thirty-eighth annual meeting of the Canadian Public Health Association, held in the King Edward Hotel, Toronto, June 12-14, 1950, in conjunction with the first meeting of the Ontario Public Health Association.

classification effects, using selected primary causes. In such studies enquiries should be made as to whether the certifying physician agrees with the cause-assignments made. Such a task might be entrusted to a committee of the Section.

We need a master plan specifying the kind of information which is desirable for local, provincial and national use in appraising health conditions.[1] The Section can provide a useful opportunity for the discussion of this live topic. The future scope of the Section should also include an interest in the field of social pathology, in the social and occupational factors affecting morbidity and mortality.

This is an era of "changing disciplines". Changes in requirement, changes in outlook, and changes in emphasis, require of us a broader vision, a wider contribution, and an expanding interest. Current interests in the field of vital and public health statistics are highlighted by an increased demand for a wider variety of data on occupational mortality and morbidity, general sickness, hospital morbidity, and cancer. This development has been stimulated by an increased awareness of the deficiencies of mortality data as an instrument of public health practice.

The first World Health Assembly set up an Expert Committee on Health Statistics. The second Assembly appointed a sub-committee to establish international definition of stillbirth and foetal death, to advise on cancer statistics including survival and recovery rates, and to examine the question of hospital morbidity statistics. In addition, each member state in the World Health Organization was invited to establish national committees on vital and health statistics. Canada on its part has set up an Advisory Medical Committee to the Dominion Statistician.

Certain problems urgently in need of solution were selected and distributed to the various committees as follows:

(a) Confidential medical certification—Belgium, France and Switzerland.
(b) Adaptation of the International List to the needs of the Armed Forces —Canada and United States of America.
(c) Linkage of health statistics—Canada and United States of America.
(d) Multiple causes of death—Switzerland, United Kingdom, and United States of America.
(e) Cancer statistics—Denmark, France, Norway, Switzerland, and United Kingdom.
(f) Foetal death statistics—United Kingdom and United States of America.

The development of national committees on vital and health statistics represents a broadening of both activities and interests in this field. The outlook of the Vital Statistics Section should be as broad in the field of voluntary effort as that of the Expert Committee on Health Statistics of the World Health Organization is in relation to the world health picture. The interests of the Section are no longer those of vital statistics in the older and narrower sense. The emphases and the outlook are now broader and more changing than when the Section was formed a quarter of a century ago. We have cause to review the present name of the Section and to bring it into line with current thinking and action. The name *Health Statistics Section* would more accurately describe our interests and our implied responsibilities.

[1]Stowman, Knud: Milbank Memorial Quart., 1949 (April), 179-187.

Two Bacteriophages for Mycobacterium Smegmatis

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THE first definite demonstration of a bacteriophage for a mycobacterium was made by Gardner and Weiser (1947). Previously, Steenken (1935 and 1938) had described "spontaneous lysis" in a culture of tubercle bacilli (H37Rv) with the subsequent formation of "resistant" colonies which were unable to induce progressive disease in guinea pigs. Three to four months' incubation was necessary before softening and liquefaction occurred. Filtrates of the lysed material induced a similar change in recent subcultures. The lytic phenomenon was not, however, referred to as a bacteriophage.

Gardner and Weiser employed a soil-enrichment procedure using *M. smegmatis* to inoculate samples of leaf compost. Seven-day cultures of the micro-organism were washed, resuspended in saline, and added to the compost twice weekly. After three weeks, filtrates of the compost were found to contain a phage which was active on the strain of *M. smegmatis* used as the inoculum, but which was not active on another smegmatis strain nor on a phlei strain on which it was tested. In subsequent experiments it was shown that this phage could be isolated from 2 of 6 samples of enriched compost and 1 sample of soil, but could not be demonstrated in any of 8 samples of unenriched compost, nor in 4 samples of soil. Apparently the enrichment technique employed was necessary for the recovery of phage.

Garden soil was the source of a phage isolated by Haudroy and Rosset (1948). By incubating broth with the soil, filtering, and adding the filtrate to broth cultures of *M. paratuberculosis* and reincubating, they were able to observe an altered turbidity in the cultures. After three or four passages, complete inhibition of growth was obtained.

Penso and Ortali (1949a) isolated five phages from earth obtained in the proximity of a manure pile. It had been demonstrated previously that this earth was rich in acid-fast micro-organisms. The phages were recovered by adding sterile distilled water to the soil and filtering. The filtrate was then tested on the micro-organisms which had been isolated from the soil, by spreading the filtrate over plates of each strain. The phages found were named after the micro-organisms on which they were isolated, viz., *Phagus pellegrini, Phagus phlei, Phagus lacticola, Phagus rabinowitschi,* and *Phagus smegmatis.* The classification of these phages was based on their activity, morphology as shown by the electron microscope, and their antigenic differences.

By applying these methods to the phage of Haudroy and Rosset, the phage of Gardner and Weiser and *Phagus smegmatis,* Penso and Ortali (1949b)

demonstrated that the phages were probably the same phage found in three widely separated localities by three slightly different methods. Adaptation of phages to tubercle bacilli is now being undertaken by Penso and Ortali (1950) and it would appear that some success is being achieved.

The present investigation was undertaken in an endeavor to isolate phages for the mycobacteria which might facilitate their classification.

FIG. I.—Electron micrograph of phage S_1

EXPERIMENTAL

The following micro-organisms were used in our study:

1. *M. smegmatis,* designated S_1, was obtained from the Department of Hygiene and Preventive Medicine, University of Toronto.
2. *M. phlei* and
3. *M. tuberculosis* var. *avium* was obtained from the Department of Agriculture, Animal Diseases Institute, Hull, Quebec.
4. BCG (Montreal strain) was obtained from the Connaught Medical Research Laboratories.
5. 607 of the American Type Culture Collection was listed in their catalogue as an avirulent strain of *M. tuberculosis* which grows rapidly and profusely on basic media. It was accepted as such for the purpose of these experiments, but the investigations of Youmans (1944) and Kelner and Morton (1946), which were brought to our attention later,

showed that the strain is more closely related to *M. smegmatis* than to the human tubercle bacillus.

6. *M. tuberculosis* var. *hominis*, designated H37Rv, was obtained from the Connaught Medical Research Laboratories.

Media Used

The inocula were grown on a modified Dubos' medium (1946) with the exception of the smegmatis strain, S_1, which was grown on horse digest broth,

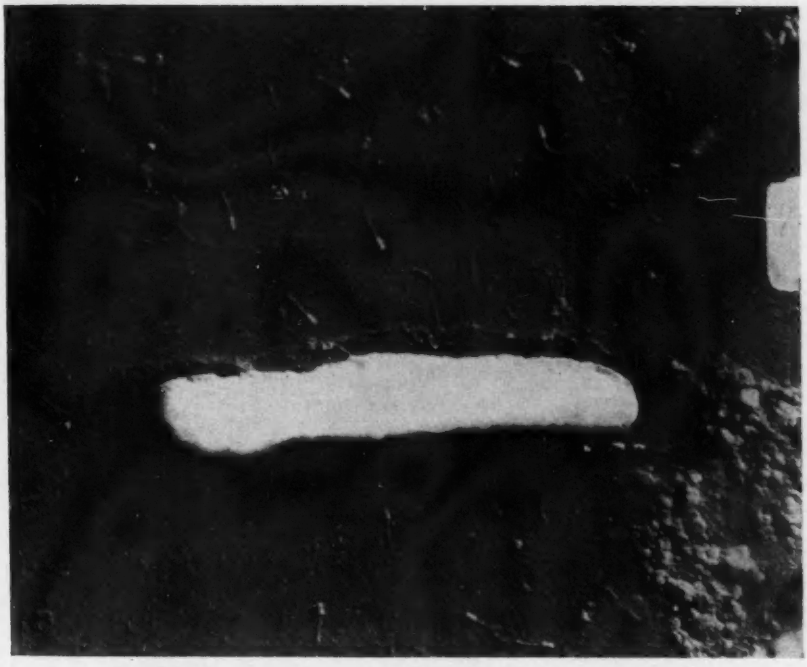

FIG. II.—Electron micrograph of phage S_1 and M. smegmatis S_1

in which medium it grew more luxuriantly. The modification of Dubos' was the substitution of normal horse serum in a final concentration of 10 per cent for the serum albumin fraction V (Shaw, 1948).

The testing for phage activity was carried out on solid media, horse digest broth agar and modified Dubos' agar, which will be referred to henceforth as agar and Dubos' agar, respectively. Similarly, horse digest broth will be referred to as broth and modified Dubos' fluid medium as Dubos' medium.

Procedure

The method followed for the isolation of phages for the first five cultures listed above was that of Gardner and Weiser (1947). Two samples of sandy soil, weighing 200 gm., were used for each strain of acid-fast micro-organism.

The inocula were seven-day cultures (5 ml.), washed and resuspended in saline. Each inoculum was thoroughly mixed into the soil by shaking. All incubation was carried out at 37°C. Inoculations were made twice weekly. After fourteen inoculations, about 20 ml. of sterile water was added to each soil sample. When the soil had settled following mixing, the supernatant fluids were filtered through sterile Whatman No. 2 filter paper into sterile tubes. After centrifugation, they were tested on all five cultures by "spotting". Spotting consisted of placing a

FIG. III.—Electron micrograph of phage 607

loopful (2 mm. loop) of the supernatant on an area of an agar plate which had been inoculated previously with the micro-organism.

In further experiments employing S_1, BCG and H37Rv the procedure was modified in respect to the preparation of the inoculum. Three soil samples were used for each micro-organism, one of which was inoculated with a ten-day culture, washed and resuspended in saline. The other two samples were inoculated with ten-day cultures in Dubos' medium. The experiment was conducted over a period of three weeks.

Results

No lytic agent was found, except in the soils inoculated with S_1 and 607. Filtrates from both soil samples which had been inoculated with S_1 produced

lysis of S_1 and 607. Filtrates from the soil samples which had been inoculated with 607, produced lysis of 607 but not S_1. No lysis was obtained with filtrates of the soils inoculated with *M. phlei*, BCG, avian or human tubercle bacilli and these strains were not susceptible to the phages isolated. A control filtrate of uninoculated soil did not lead to lysis of any of the cultures.

A control experiment in which *M. phlei*, 607 and S_1 were incubated in sterile soil and saline for five days showed that these micro-organisms multiplied in this environment.

Characteristics of the Phages Found

The phage obtained from soil inoculated with S_1 and designated phage S_1 was similar to the Gardner and Weiser phage in its activity and morphology. It was active on three cultures, S_1, 607, and the Gardner and Weiser strain of *M. smegmatis* which we designated S_2. This smegmatis strain and its phage were kindly given to us by R. S. Weiser, Department of Microbiology, School of Medicine, University of Washington. It showed no activity for two *M. phlei* strains, eight unclassified saprophytic acid-fast strains, BCG, nor for five avian, three bovine, and seven human tubercle bacilli strains. It gave confluent lysis on solid medium in dilutions of 10^{-4} with 607 and 10^{-3} with S_1. The Gardner and Weiser phage produced confluent lysis in a dilution of 10^{-4} with both these organisms. The activity of both phages was destroyed by heating at 75°C. for 10 minutes, and was greatly reduced by 70°C. for ten minutes.

Electron micrographs revealed the phage S_1 and the Gardner and Weiser phage as tailed cylindrical structures. The heads measured 50 to 60 μ in width and about 95 μ in length. In some individuals, there appeared to be two areas of density, one behind the other, the shadow indicating a central depression. The tails were approximately 200 μ in length and 18 μ in thickness (Figs. I and II).

The phage obtained from soil inoculated with 607 and designated phage 607 differed in activity and morphology from the two described above. It was active on two cultures only, 607 and S_2, and did not act on S_1 nor any of the other saprophytic and pathogenic acid-fast strains tested. It also was destroyed by 75°C. but not entirely by 70°C. in ten minutes, and the potency of the phage was similar to that of the other phages. Morphologically, it manifested quite different characteristics. The head was spherical and about 50 μ in diameter. The tail was 320 μ in length and wavy in character (Fig. III).

The technique for preparing electron microscope mounts was similar to that used by Edwards and Wyckoff (1947) and may be outlined briefly as follows. An agar plate was inoculated with the susceptible culture and spotted with phage in the usual manner. After incubation, the micro-organisms were exposed to formalin fumes for about 30 minutes and squares of agar, including the lysed areas, were cut out and placed on glass slides. Formvar in ethylene dichloride was poured over the squares and drained off. The Formvar dried, forming a film which was floated off in water, recovered with a ladle and placed inverted, on the usual metal grid. Phage and a few bacteria adhered to the film. The mounts were shadow cast with palladium. The electron micrographs were made by the Department of Physics, University of Toronto.

Discussion

Phages for the saprophytic acid-fast bacteria were readily isolated from soil. Although Penso and Ortali were able to isolate phages directly from earth, it was found in our experiments that specific enrichment of the soil was necessary. The discrepancy can be explained possibly by the difference in the soils used. In Penso and Ortali's experiment the soil employed was already rich in the acid-fast strains for which the phages were isolated. Presumably specific phages were also present and able to multiply on the numerous susceptible micro-organisms. On the other hand, one may assume that the sandy soil used probably contained some mycobacteria and phages, but that these phages had to be adapted to the micro-organism used as the inoculum. The importance of the role played by the inoculum used is illustrated by the isolation of two phages from the same type of soil by the use of two different strains of mycobacteria as inocula.

The method used in our experiments has proven unsatisfactory for the isolation of phages for the pathogenic acid-fast organisms and BCG. The ability of the saprophytes to multiply in soil is probably the deciding factor for the success of the enrichment technique with such strains.

Summary

1. Soil-inoculation experiments yielded two distinct phages for the saprophytic acid-fast mycobacteria.

2. One phage was active for three strains, the other for only two strains of thirteen saprophytic strains tested.

3. The phages showed distinct morphological differences.

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Canadian Journal of Public Health

MISINTERPRETATION OF REACTIONS TO REVACCINATION

REPORTING a comparison of the reactions elicited by inert (heat-killed) vaccine virus and those by potent live vaccine virus, Benenson (1), in a recent number of the Journal of the American Medical Association, covers, confirms and adds to work reported in this Journal (2) approximately twenty years ago.

There is no doubt whatever that the early reaction following revaccination is merely a sensitivity reaction specific to the virus; it is as readily elicited, and much to the same degree, by killed virus as by potent live virus; it is not at all an index of immunity but merely indicates previous vaccination or smallpox; and the term "immune reaction" is altogether misleading and its continued use perpetuates an unfortunate fallacy.

However, we cannot concur with Benenson's suggestion that the early reaction should be called the "immediate reaction", because it is not immediate; it takes some hours, at least, to develop, while truly immediate reactions may be seen occasionally in persons highly sensitive to other constituents (calf protein) of the virus mixture. Either "early reaction" or "sensitivity reaction" is more truly descriptive of it, and, unlike the term "immune reaction", neither is deceptive. Nor can we concur that the "early reaction" should be accepted as evidence of "probably residual immunity adequate for the usual exposures of American living." Not being an index of immunity at all, its use as such cannot be justified by any expediency which encourages sloppy and inaccurate thinking and practice. It is the absence of later reaction—of a vaccinoid or typical "take"—*when fully potent vaccine is properly used and if necessary repeated,* that provides the evidence of immunity.

This subject is not merely an academic one. It is academic to the extent that proper understanding of such reactions is necessary for basic understanding of immunology, an understanding which it is reasonable to expect in professional personnel. But when the lack of understanding of the reaction with its misinterpretation releases from quarantine incubating smallpox cases, and, through the same false sense of security, permits non-immune persons (troops) to be

exposed to and thus to contract virulent smallpox, as is reviewed by Benenson and as was to be anticipated on the previous evidence, the question becomes one of primary practical importance.

It is to be greatly regretted that the term is still in the International Certificate of Vaccination. In all probability, this is so because the term has been used or condoned or advocated by such public health bodies as the United States Public Health Service, the American Public Health Association and, largely through their influence, by the World Health Organization.

The recognition and admission of the fact that the early reaction is not an index of immunity and that the term "immune reaction" is a deceptive misnomer leading to most unfortunate results, is long overdue; its continued use by any public health organization reflects no credit on that institution. From the teaching standpoint, too, it is quite unjust to medical students to burden them with such a misconception and deceptive term. Though belief and practice, however ill-founded, die hard, it is to be hoped that action will be taken promptly, following the publication of Benenson's most convincing contribution, to correct this error of the years.

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NEWS

Alberta

THE ALBERTA Public Health Association held its annual convention in Lethbridge on September 4, 5 and 6. The first day's activities consisted of a reception, held in the evening, which was well attended. This was an innovation and was favourably commented on. A busy two days was highlighted by the dinner meeting on the 5th, at which the guest speaker was Dr. G. R. F. Elliot, Assistant Provincial Health Officer for British Columbia. Dr. Elliot, who attended the convention through the courtesy of the Canadian Public Health Association and the Department of Health and Welfare of British Columbia, spoke well and entertainingly. His subject was "Public Health, Present and Future". The following officers were chosen for the year 1950-51:

President: Dr. Margaret O'Meara, Medical Officer of Health, Lethbridge.

Vice-President: Miss Isabel Reesor, Lecturer in Public Health Nursing, University of Alberta, Edmonton.

Secretary: Miss Ethel C. Shaw, School Nurse, City of Calgary.

Treasurer: Mr. Reginald Jackson, Dairy Inspector, Calgary.

Chairman, Nurses Section: Miss Marguerite Fitzsimmons, Acting Director, Public Health Nursing, Edmonton.

Chairman, Medical Officers Section: Dr. H. G. Ball, Medical Officer of Health, Foothills Health Unit, High River.

Chairman, Sanitary Inspectors Section: Mr. W. A. Milligan, Plumbing Inspector, Provincial Department of Public Health, Edmonton.

Editor: Mr. E. C. Powell, Sanitary Inspector, Local Board of Health, Edmonton.

The name of the Association's periodical was changed from *Alberta Public Health Worker* to *Alberta Public Health Bulletin*. The convention chose Edmonton as the site for next year's convention.

THE SANITATION OF STREAMS in Alberta is becoming a more serious problem due to increasing amounts of sewage and to increasing amounts of industrial waste being added. To assess the present stream sanitation and the potential abilities of Alberta streams to carry sewage, a project is now under way, under the Federal Public Health Grant. Mr. P. Bouthillier, Acting Provincial Sanitary Engineer, is in charge of the program, assisted by Mr. W. A. Dexter, Chemical Engineer.

STETTLER HEALTH DISTRICT recently appointed Mr. Carl Grasby as full-time sanitary inspector. Prior to this, the district "shared" a sanitary inspector with the Red Deer Health Unit.

MISS EVELYNE WILSON, R.N., B.Sc., who has spent a year with the Holden Health Unit, is now senior nurse with the Stettler Health Unit.

DR. E. GOODWIN RAWLINSON, Dean of the Royal Institute of Public Health and Hygiene, London, England, was in Canada recently and spent a few days in Alberta on a private visit to Dr. M. P. G. Rawlinson, Medical Officer of Health of the Stettler Health Unit.

MISS T. MACKENZIE, senior nurse of the Stettler Health Unit, resigned on August 31st. She has been replaced by Miss H. M. James, R.N., B.Sc., who had been nursing at the Misericordia Hospital, Edmonton, since her graduation in September, 1949.

MISS TILLEE HOLOWAYCHUK, R.N., B.Sc., has been transferred from the MacLeod-Pincher Creek Health Unit to the Drumheller Unit. Her place has been taken by Mrs. D. W. Lequesne, R.N., B.Sc., who nursed at Lillooet, B.C., before coming to Alberta.

Ontario

THE LABORATORY STAFF of the Ontario Division of Industrial Hygiene recently moved into new expanded quarters at 360 Christie Street, Toronto, formerly the pavilion building of Christie Street Hospital.

IN THE EDUCATIONAL DISPLAY sponsored by the Ontario Division of Industrial Hygiene at the recent Canadian National Exhibition in Toronto, two features attracted much interest. One was a scale model of a

health centre, representing facilities suitable for an industrial plant of medium size. This miniature layout rotated slowly in the public view. The second item indicated the Division's interest in the health aspects of radioactivity. A toy train carried a very weak radon seed in one of its box cars. On every trip it excited a Geiger-counter hidden below the station, resulting in a flash of lights and a mild roar in a loud speaker.

Manitoba

THE OFFICIAL OPENING of the Whitemouth Medical Nursing Unit took place Labor Day, at Whitemouth, Manitoba. This unit serves 2,438 people in an area of 720 square miles, including the Rural Municipality of Whitemouth and part of the local Government district of Reynolds. The unit comprises 10 beds, 6 bassinets and emergency operating room and delivery room.

THE MANITOBA MEDICAL ASSOCIATION held a three-day annual meeting in Winnipeg, early in October. Dr. Eyjolfur Johnson of Selkirk was elected President of the Association, succeeding Dr. D. L. Scott, of Winnipeg. Other officers appointed were: first vice-president, Dr. A. M. Goodwin; second vice-president, Dr. C. W. Wiebe, Winkler, Manitoba; honorary secretary, Dr. G. B. Schoemperlen; honorary treasurer, Dr. Ruvin Lyons.

THE DEPARTMENT OF HEALTH and Public Welfare announces the appointment of Miss Donna M. Baxter as Senior Nutritionist. Miss Baxter is a gold medalist of the University of Manitoba, and has done post-graduate work in home economics at Simmons College, Boston, Massachusetts.

TWENTY-EIGHT PRACTICAL NURSES received their licences at graduation exercises held on September 8th at the Manitoba Technical Institute. These graduates studied at the Central School for Practical Nurses in Winnipeg, and received their hospital training at various hospitals throughout the province eligible to give such training.

TWO MANITOBA DOCTORS are attending the School of Hygiene, University of Toronto, this year. They are Dr. J. M. O'Keefe and Dr. J. Scatliff. For the past year Dr. O'Keefe has been Acting Medical Director of the Stonewall Health Unit, and spent several months as Acting Medical Director of the Selkirk Health Unit. Dr. Scatliff was formerly Municipal Doctor for the rural municipality of Argyle, Manitoba.

DR. H. R. STEWART has been appointed Director of Dental Services, Manitoba Health and Public Welfare, succeeding Dr. W. G. Campbell, who is now in private practice.

DR. M. R. ELLIOTT will represent the Department of Health and Public Welfare at the American Public Health Association meeting, to be held October 30th to November 3rd in St. Louis, Missouri.

THE FIFTH ANNUAL convention of the Western Canada Institute for Hospital Administrators and Trustees was held October 16th-20th. Registration of members from the four Western provinces amounted to 230. The meeting was under the auspices of the hospital associations of the four western provinces and was opened by the Hon. Ivan Schultz, K.C., Manitoba's Minister of Health and Public Welfare.

DR. INDARJIT SINGH, Director of Maternity and Child Health Services, in the Punjab, India, visited Winnipeg on a United Nations scholarship, to study Canadian methods. While here Dr. Singh visited the city Health Department, the Children's Hospital, and the Selkirk Health Unit.